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UNDERSTANDING COLLABORATIVE STICKINESS INTENTION IN SOCIAL NETWORK SITES FROM THE PERSPECTIVE OF KNOWLEDGE SHARING

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Abstract

This study aims to investigate users' knowledge sharing intention and collaborative stickiness intention towards social network sites (SNS). SNS offer an opportunity for users to interact and form relationships, while knowledge is accrued by integrating user's information, experience, and practice. However, there have been few systematic studies that ask why people use SNS to share knowledge. We adopt social capital theory, social identity theory, as well as use and gratification theory to explore the determinants of members' knowledge sharing intention in SNS. The survey was conducted on two education VCs of facebook, while most members were teachers and educators. Data analysis was carried out to validate our research model, and SmartPLS were used to analyze users' collaborative stickiness intention. The result shows that social capital and social identity have impact on teacher's knowledge sharing intention, in turn, influence on collaborative stickiness intention toward on SNS. Our findings not only help researchers interpret why members sharing their knowledge in VC, but also assist practitioners in developing better SNS strategy.

Keywords: Virtual community (VC), Social network sites (SNS), Collaborative stickiness intention, Knowledge sharing, Social capital theory, Social identity theory, Use and Gratification Theory

1 INTRODUCTION

The emerging channels of social network services/ sites (SNS), such as Facebook, Twitter, and MySpace, provide an ideal platform for sharing interests and facilitating social interaction amongst various groups having common thoughts on a particular topic (Leng et al. 2011). Various types of virtual community (VC) are built by users in SNS. For example, the myriad Facebook groups in existence can be seen as constituting VCs which connect people and affect their relationships. A VC is an information technology (IT) supported virtual space that is composed of a group of people for accessing, sharing and disseminating topic-related experiences and knowledge through communication and social interaction (Jones et al. 2004; Zheng et al. 2013). VCs existing in SNS not only permit users to express comments and opinions on products, people and organizations (Xu et al. 2012), but also open up opportunities for new electronic commerce business models. A user decides his level and mode of participation based on his individual needs and experiences using a particular VC. Should he find that a particular VC does not satisfy his needs, he can stop using the VC or switch to another VC of the same type, if one is available. Therefore, retaining existing users is critical for a VC's long-term development (Zheng, Zhao et al. 2013). A website's ability to retain online users and prolong the duration of each user's stay can be referred to as website stickiness, and is one of the key factors in e-commerce success (Lin 2007). Not surprisingly, website stickiness has become an important issue for Information System (IS) research (Li et al. 2006).

Because of the role of individual commitment in collectivity and the social nature of group action, this study highlights users' collaborative stickiness intention. While past studies have started to address the issues surrounding SNS, these studies have basically adopted the classical individual-based models to investigate participation in this new and complex communication and interaction phenomena (Hsiao 2011; Lee et al. 2011; Lin and Lu 2011; Pollet et al. 2011; Zhang et al. 2011; Chai and Kim 2012; Chang and Zhu 2012; Hughes et al. 2012; Xu et al. 2012). Following Dholakia et al. (2004), Cheung and Lee (2010) as well as Shen et al. (2011) proposed the concept of "we-intention" to describe why people join SNS. The term we-intention describes a collaborative intention in the form of the commitment on the part of an individual to engage in joint action, and involves an implicit or explicit agreement between the participants to engage in that joint action (Tuomela 1995; Cheung and Lee 2010; Cheung et al. 2011). Therefore, collaborative intention emphasizes collective agreement and the commitment involved in the performance of a group behavior. In addition, people with collaborative intention view a group activity holistically, instead of in an atomistic sense (Bagozzi and Lee 2002; Dholakia, Bagozzi et al. 2004; Cheung and Lee 2010). VCs in SNS place emphasis on users' repetitive visits and the relationship development between users and the website. Therefore, the long-term development of SNS relies on their users' collaborative stickiness of use (Chang and Zhu 2012). Although the importance of collaborative stickiness intention is recognized, few studies have examined its antecedents and its relationship to IS strategy.

SNS offer an opportunity for users to share knowledge, while knowledge is accrued by integrating user's information, experience, and practice. Supported by SNS, VCs provide an attractive place for individuals to exchange knowledge with others. Knowledge sharing has been pervasively used in traditional VCs (Kankanhalli et al. 2005; Wasko and Faraj 2005). There has been a change of emphasis from sharing knowledge in VC, to exchanging knowledge in SNS. Previous literature suggests that the success of VCs requires that their members are willing to share their knowledge with other members (Chiu et al. 2006; Hsu et al. 2007). In contrast to traditional VC platforms, people can easily disseminate their opinions via their profiles and instant messages, and can easily share links and recommendations in the SNS environment. Identifying the motivations underlying knowledge sharing behavior in VCs would help academics gain insights into how to stimulate knowledge sharing in SNS. Moreover, the issue of how to facilitate users of SNS interacting with others to share knowledge will be a critical one for practitioners.

The present study examines members' knowledge sharing intention and collaborative stickiness intention. In particular, the research explicitly addresses (1) the impact of VC members' knowledge sharing intention on collaborative stickiness intention toward SNS. (2) the significance of member's knowledge contribution in VC. The research topic is important for a number of reasons. First, the relationship between knowledge sharing and collaborative stickiness intention is still unclear. To improve on existing research and to create new insights into the dynamic properties of VCs, this research captures communication data from VC of SNS. The main contributions of this project lie in examining how to build users' knowledge contribution in SNS, and exploring how to convert VC members into SC buyers.

A second foundation for this study focuses on the determinant of members' knowledge sharing intention. To shed light on these antecedents, we begin to understand users' knowledge sharing intention in VCs found in SNS by reference to social capital theory and social identity theory. Social capital is defined as "resources embedded in a social structure that are accessed and/or mobilized in purposive action" (Lin 2001). To maintain social capital, an actor in a social network is likely to engage in resource and relational exchange with other members (Adler and Kwon 2002). Therefore, social capital can be understood as a resource for collective action, which may lead to a broad range of individual and group outcomes (Lu and Yang 2011). Since social capital encourages collaboration and cooperation between members of groups for their mutual benefits (Putnam 2000), this distinction is important to link social capital research to recent VC and SNS studies (Dholakia, Bagozzi et al. 2004; Hsiao and Chiou 2012). Furthermore, social identity theory (Tajfel 1978) provides an essential theoretical background for questions of group identification and member behavior. The basic premise of social identity theory is that by categorizing themselves as members of a particular social relation group, group members establish their identity in the social universe to which they belong (Mael and Ashforth 1992; Hogg and Terry 2000).

A third rationale for the research topic, Despite the importance of social capital and social identity, most prior studies have incorporate either social capital or social identity as an antecedent or moderator to explain users' behavior. As it stands, the integration of these two theories to explore knowledge sharing intention in SNS is still lacking. To address this gap, the present study examines the relationships of users' collaborative stickiness intentions and knowledge sharing intention toward SNS from social capital and social identity perspectives.

2 LITERATURE REVIEW

2.1 Social Capital Theory

The social capital theory suggests that social capital, the network of relationships possessed by an individual or a social network, and the set of resources embedded within it, strongly influence the extent to which interpersonal knowledge sharing occurs (Nahapiet and Ghoshal 1998). Social capital can be highly developed in a society that has the characteristics of shared history, high interdependence, frequent interaction, and closed structures (Nahapiet and Ghoshal 1998; Wasko and Faraj 2005). Social capital theory has been applied to explain a variety of social behaviors (Lin and Chiu 2011), such as knowledge exchange and experience sharing in organizations. The feature of face-to-face interaction in traditional organizations allows the formation of social capital to occur more immediately than it does in cyberspace. Even so, prior studies related to online environments indicate that social capital has an impact on VC user behavior, such increasing users' sense of belonging to a VC (Zhao et al. 2012), facilitating users' participation (Wang and Chiang 2009; Hsiao and Chiou 2012), and sharing experiences and knowledge with others (Widén-Wulff and Ginman 2004; Chiu, Hsu et al. 2006; Chang and Chuang 2011; Hsu et al. 2011; Lu and Yang 2011). Further, there is increasing evidence that people use SNS for frequent social interactions with friends and even with people they have never met before in real life. Social capital includes access to the reciprocal, trusting

social connections that contribute to the processes of giving and getting (Lu and Yang 2011), while the building of social capital would cement the SNS activities and enhance information exchange. Recently, bridging and bonding social capitals are widely discussed in the context of SNS (Lin 2011; Lin and Chiu 2011; Chai and Kim 2012; Chang and Zhu 2012; Zhao, Lu et al. 2012). The results show that social capital has remarkable influence on users' intention to join SNS, as well as their knowledge contribution intention. Following the above research approach, this study investigates the role of social capital and examines its impact on knowledge sharing in the SNS context.

2.2 Social Identity Theory

Social identity theory provides an essential theoretical background of community identification and user behavior. When building an online community, the major concern has been how users perceive themselves as part of a chosen community, and the behavioral results of such users' perceptions in terms of their membership (Qu and Lee 2011). Tajfel (1972) first introduced the concept of social identity to refer to "the individual's self concept that he belongs to certain social groups together with some emotional and value significance to him of this group membership". Social identity theory has expanded from its origins in social psychology to areas of organizational research (Ashforth and Mael 1989; Hogg and Terry 2000). Previous studies on organizational identification have suggested that people who have a strong sense of identification with their organization are likely to accept the organization's goals as their personal goals and be loyal and obedient (Dutton et al. 1994). For the last decade, social identity theory has been widely applied to the context of online community (Bagozzi and Lee 2002; Dholakia, Bagozzi et al. 2004; Casaló et al. 2010; Qu and Lee 2011). The results show that social identity is achieved through interactive communication around shared interests (Qu and Lee 2011), and is a crucial determinant that affects intention to use VC services (Bagozzi and Dholakia 2006; Song and Kim 2006) and increases attachment to the VC (Ren et al. 2012). Recently, social identity has been expanded to the social network environment for examining users' participation in SNS (Cheung and Lee 2010; Kwon and Wen 2010). Specifically, several studies have confirmed that social identity can strengthen users' knowledge contribution intention (Hsu and Lin 2008; Shen et al. 2009; Kim et al. 2011; Wang and Wei 2011).

2.3 Use and Gratification Theory

Uses and gratifications (U&G) is a media use paradigm from mass communications research that focuses on individual use and choice of media (Katz 1959). The main purpose of this paradigm is to explain the reasons that people choose a specific medium over alternative communication media and to elucidate the psychological needs that motivate people to use a particular medium (Cheung, Chiu et al. 2011). Previous U&G studies of computer communication applications include cellular phones, electronic bulletin boards, emails, IM, short message services, the Internet, user-generated content, web-based information services, and virtual communities (Chung and Kim 2008; Cortese and Rubin 2010; Guo et al. 2010; Wu et al. 2010; Luo et al. 2011). U&G has been considered a useful approach for understanding users' motivations in the context of media (Luo, Chea et al. 2011; Xu, Ryan et al. 2012). The web based applications enhanced U&G's predictive power because in computer and communication settings, users become empowered because it is relatively easy for them to switch from one medium to another providing similar services (Xu, Ryan et al. 2012).

3 RESEARCH MODEL AND HYPOTHESES

Research model and hypotheses is shown as Figure1.

3.1 Linking knowledge sharing and collaborative stickiness intention

Boyd and Ellison (2008) define SNSs as web-based services that allow individuals to construct a semi-public profile, articulate a list of other users with whom they share a connection, and view and traverse their list of connections and those made by others within the system. In other words, SNS have various activities such as users' communication and knowledge sharing. Stickiness is usually described as the user's dependence on the website (Xu and Liu 2010). According to Davenport (2000), stickiness is the ability of websites to draw and retain users. As the SNS spirit emphasizes user's interaction and involvement, users are the key to a successful website. Thus, the motives affecting stickiness intention to SNS continuous usage becomes an important issue. Several studies indicated that trust and commitment affect users' stickiness intention (Li, Browne et al. 2006; Lin 2007; Shen, Yu et al. 2009; Elliot et al. 2013), and the result implied that mature communications such as knowledge sharing behavior have impact on stickiness intention. Social networks have been recognized as an important factor which impacts knowledge sharing activities among organizational members. From a knowledge repository perspective, as part of knowledge reuse collaboration SNS users creates contents in the SNS. These contents can be utilized as social resources of the Internet, especially as knowledge and information (Chai and Kim 2012). Thus, we hypothesize:

H1: SNS users' knowledge sharing intention is positively associated with their collaborative stickiness intention.

3.2 Linking social capital dimension, social identity dimension and behavioral dimension

Nahapiet and Ghoshal (1998) suggested that social capital exists within networks of relationships that are possessed by an individual or social unit. Building on Nahapiet and Ghoshal (1998), Tsai and Ghoshal (1998) empirically justified how social capital facilitates resource exchange and production innovation within the organization. Following Nahapiet and Ghoshal's (1998) theoretical model, we define social capital in terms of three distinct dimensions as structural, relational, and cognitive. Scholars have also suggested the existence of close interrelationships among the characteristics contained in the above three categories (Nahapiet and Ghoshal 1998; Wang and Chiang 2009). Moreover, this study conceptualizes social capital as a high-order representation of social interaction ties, trust, and shared vision in a VC. Prior IS studies have been highlighted the role of social capital in users' knowledge sharing behavior in organization or online context (Wasko and Faraj 2005; Chiu, Hsu et al. 2006). At the center of online information transfer and social interaction, SNSs are the most popular and fastest growing types of internet sites (Hughes, Rowe et al. 2012). Recent studies have been validated social capital could facilitate users' SNS usage and knowledge contribution (Chang and Chuang 2011; Lin 2011; Lin and Chiu 2011; Chai and Kim 2012; Chang and Zhu 2012; Nov et al. 2012; Zhao, Lu et al. 2012). We infer that social capital play an important role in users' communication and knowledge contribution in SNS. Based on this discussion,

H2: Social capital of SNS is positively associated with users' knowledge sharing intention.

Social identity is characterized by its solidarity to the social group, conformity to in-group norms, and discrimination against out-groups. According to Dholakia et al. (2004), there are three major components of social identity, including cognitive social identity, evaluative social identity, and affective social identity. In this study, social identity may be conceptualized as a second-order latent construct with cognitive, evaluative, and affective components. Cognitive social identity means the self-categorization process renders the self stereotypically interchangeable with other group members, and stereotypically distinct from outsiders. Evaluative social identity is the evaluation of self-worth on the basis of belonging to a particular group. Affective social identity is a sense of emotional involvement with the group, which is characterized by identification with, involvement in, and emotional attachment to the group (Cheung and Lee 2010). A growing number of professionals have started SNS and use it to present their work, to find out social identification with the VC results in greater in-group favoritism (Yu et al. 2010; Zhou 2011). Previous empirical study also demonstrates

that social identity is able to increase the volume of knowledge sharing in VCs (Chiu, Hsu et al. 2006; Shen, Yu et al. 2009; Qu and Lee 2011; Wang and Wei 2011), which leads to the following hypothesis:

H3: Social identity of SNS is positively associated with users' knowledge sharing intention.

3.3 The relationship among U&G dimension, social capital dimension, and social identity dimension

Recently, U&G was found to be very predictive of SNS usage (Raacke 2008; Chen 2011; Cheung, Chiu et al. 2011; Zhang, Tang et al. 2011; Xu, Ryan et al. 2012), and to explain users' selection of medium that meets their needs, such as a desire for information, emotional connection, and status (Chen 2011). According to literature, this study states that users are goal-directed in their behavior and are aware of their needs (Cheung, Chiu et al. 2011). We assume that online interaction, offline interaction, emotional support, enjoyment, and informativeness determine the use of SNS. SNS can be viewed as virtual collections of user profiles which can be shared with others (Hughes, Rowe et al. 2012). Several studies found that individuals' personal interactions positively affect IS usage, and enable human-computer and interpersonal interactions and strengthen users' social presence (Chen and Yen 2004; Yeh et al. 2011). Besides, Zhang et al. (2011) found that giving and receiving emotional support enhance SNS usage. Therefore, the hypotheses are:

H4a: Users' online interaction in SNS is positively associated with social capital

H4b: Users' online interaction in SNS is positively associated with social identity

H5a: Users' offline interactivity in SNS is positively associated with social capital

H5b: Users' offline interactivity in SNS is positively associated with social identity

H6a: Users' emotional support from other users is positively associated with social capital

H6b: Users' emotional support from other users is positively associated with social identity

4 RESEARCH METHODOLOGY AND DATA ANALYSIS

4.1 Measurement development and Survey administration

The survey was conducted on two education VCs of facebook. Most members were librarian, teachers, and educators, as well as they exchange professional knowledge and skill base in VC. The link of web questionnaire was post on the forum. The data were collected during February and April 2013. By the time this survey was closed, 201 valid questionnaires had been received, and these were subsequently analyzed.

We used multiple items based on five-point Likert scales for all constructs. Whenever possible, we adapted scales from existing research. Online interaction and offline interactivity are measured using items adapted from Chen and Yen (2004) and Lee et al. (2011). Emotional support is measured by items adapted from Liang et al. (2011). Items for measuring enjoyment are adapted from Wu et al. (2010) and Dholaka et al. (2004), while informativeness is measured by items adapted from Chang and Zhu (2011). Items for measuring social capital are adapted from Chiu et al. (2006). Social identity is measured using items adapted from Bagozzi et al. (2004) as well as Chenug and Lee (2010). Social presence is measured using items adapted from Gefen and Straub (2004), while relationship quality is measured using items adapted from Liang et al. (2011). Knowledge sharing intention is measured using items adapted from Chiu et al. (2006). Group buying intention is measured using items adapted from Kauffman et al. (2010) as well as and Chan and Li (2010). Items for measuring collaborative stickiness intention in SNS are adapted from Cheung et al. (2011), Dholakia et al. (2004), and Li et al. (2006).

4.2 Data analysis

The results were analyzed using a partial least squares structural equation modeling (PLS-SEM) approach, supported by SmartPLS (Ringle et al. 2005). An increasing number of IS studies (Marcoulides and Saunders 2006) and marketing research studies (Hair et al. 2012) have employed the PLS-SEM technique (Ringle et al. 2012). PLS-SEM places minimal restrictions on measurement scales, sample size and residual distribution (Chin and Newsted 1999). SmartPLS has become an important application for handling formative measures (Ringle, Sarstedt et al. 2012), such as the current study.

The adequacy of the measurement model was evaluated based on the criteria of reliability and validity. Reliability is examined using the composite reliability values. As shown in Table 1, the values for all reliability exceed 0.7, meeting the suggested threshold. For construct validity, both convergent validity and discriminant validity were examined. Convergent validity is adequate when constructs have an average variance extracted (AVE) of at least 0.5 (Fornell and Larcker 1981). All AVEs ranged from 0.65 to 0.84, suggesting the principal constructs capture a higher amount of construct-related variance than error variance. Discriminant validity was assessed by the square root of AVE values for each construct, which should be greater than the correlation estimates involving the construct (Fornell and Larcker 1981). Comparison of construct correlation and the square root of the AVE are shown in Table 2. Off-diagonal elements are the correlations among constructs, which ranged from 0.17 to 0.79. Diagonal elements are the square root of the AVE, and all these values exceed the inter-construct correlations.

Construct	Items and Factor loading	Composite reliability	Average variance extracted
Collaborative stickiness intention (CS)	CS1=0.81 CS2=0.91 CS3=0.90 RI4=0.87	0.93	0.77
Knowledge sharing intention (KS)	KS1=0.90 KS2=0.89 KS3=0.91 KS4=0.89	0.94	0.80
Social interaction tie (SIT)	SIT1=0.76 SIT2=0.82 SIT3=0.84	0.85	0.65
Trust (TR)	TR1=0.88 TR2=0.89 TR3=0.90	0.92	0.79
Shared vision (SV)	SV1=0.88 SV2=0.87 SV3=0.86	0.90	0.76
Cognitive social identity (CI)	CI1=0.81 CI2=0.83	0.81	0.68
Affective social identity (AI)	AI1=0.90 AI2=0.90	0.89	0.81
Evaluative social identity (EI)	EI1=0.92 EI2=0.92	0.91	0.84
Online interactivity (ONI)	ONI1=0.79 ONI2=0.87 ONI3=0.85 ONI4=0.78	0.89	0.68
Offline interactivity (OFI)	OFI1=0.90 OFI2=0.92 OFI3=0.84	0.93	0.78
Emotional support (ES)	ES1=0.88 ES2=0.91 ES3=0.85 ES4=0.90	0.91	0.78

Table 1. Results of reliability and convergent validity

	AI	CI	CS	ES	EI	KS	OFI	ONI	SV	SIT	TR
Affective social identity	0.90										
Cognitive social identity	0.72	0.82									
Collaborative stickiness intention	0.48	0.51	0.88								
Emotional support	0.39	0.55	0.71	0.88							
Evaluative social identity	0.61	0.75	0.28	0.33	0.92						
Knowledge Sharing intention	0.42	0.50	0.79	0.73	0.32	0.90					
Offline interactivity	0.38	0.32	0.47	0.39	0.17	0.41	0.88				
Online interactivity	0.46	0.49	0.59	0.50	0.40	0.58	0.42	0.82			
Shared vision	0.48	0.46	0.60	0.51	0.27	0.54	0.74	0.52	0.87		
Social interaction tie	0.44	0.50	0.72	0.66	0.31	0.65	0.52	0.55	0.62	0.81	
Trust	0.40	0.42	0.59	0.50	0.33	0.48	0.64	0.57	0.66	0.70	0.89

Off-diagonal elements are the correlations among constructs. Diagonal elements (in bold) are the square root of the AVE, and these values should exceed the inter-construct correlations for adequate discriminant validity.

Table 2. Results of discriminant validity

4.3 Model testing results

The PLS-SEM approach was used to test the hypothesized relationships in the research model. Figure 1 illustrates the estimated coefficients and their significance in the structural model, showing that eight of nine relationships were statistically significant. H1, H2, H4a, H4b, H5a, and H6a exhibited a P-value less than 0.01, as well as H3 and H6b exhibited a P-value less than 0.001. The significance of all paths was assessed with 2000 bootstrap runs. The path between knowledge sharing intention and collaborative stickiness intention was significant ($\beta=0.789$, $t= 23.958$), supporting H1. Social capital and social identity positively influenced knowledge sharing intention ($\beta= 0.530$, 0.193 ; $t=8.118$, 2.673 , respectively), meaning that H2 and H3 were supported. Social capital was strongly predicted by online interaction, offline interactivity, and emotional support ($\beta= 0.251$, 0.500 , 0.309 ; $t= 4.060$, 7.692 , 5.865 , respectively). Therefore, H4a, H5a, H6a were supported. Online interaction and emotional support had significant effects on social identity ($\beta= 0.333$, 0.270 ; $t=4.699$, 3.068 , respectively). Thus, H4b and H6b were supported. The path coefficients indicated that offline interactivity does not impact on social identity ($\beta=0.083$, $t= 1.030$), while H5b was not supported.

5 CONCLUSION AND DISCUSSION

This paper studies how social capital and social identity affect users' knowledge sharing intention and consequently their collaborative stickiness intention to SNS. Our findings suggest that most facets of U&G dimensions except offline interactivity are helpful in explaining social capital and social identity in virtual environment. Users' online interaction, offline interactivity, and emotional support enhance social capital of SNS. Moreover, the finding implied that online interaction and emotional support encourage members' social identity of SNS. However, offline interactivity has no significant effect on social identity. The results provide evidence that social capital and social identity have impact on teacher's knowledge sharing intention, in turn, influence on collaborative stickiness intention toward on SNS. Our findings not only help researchers interpret why members sharing their knowledge in VC,

but also assist practitioners in developing better SNS strategy.

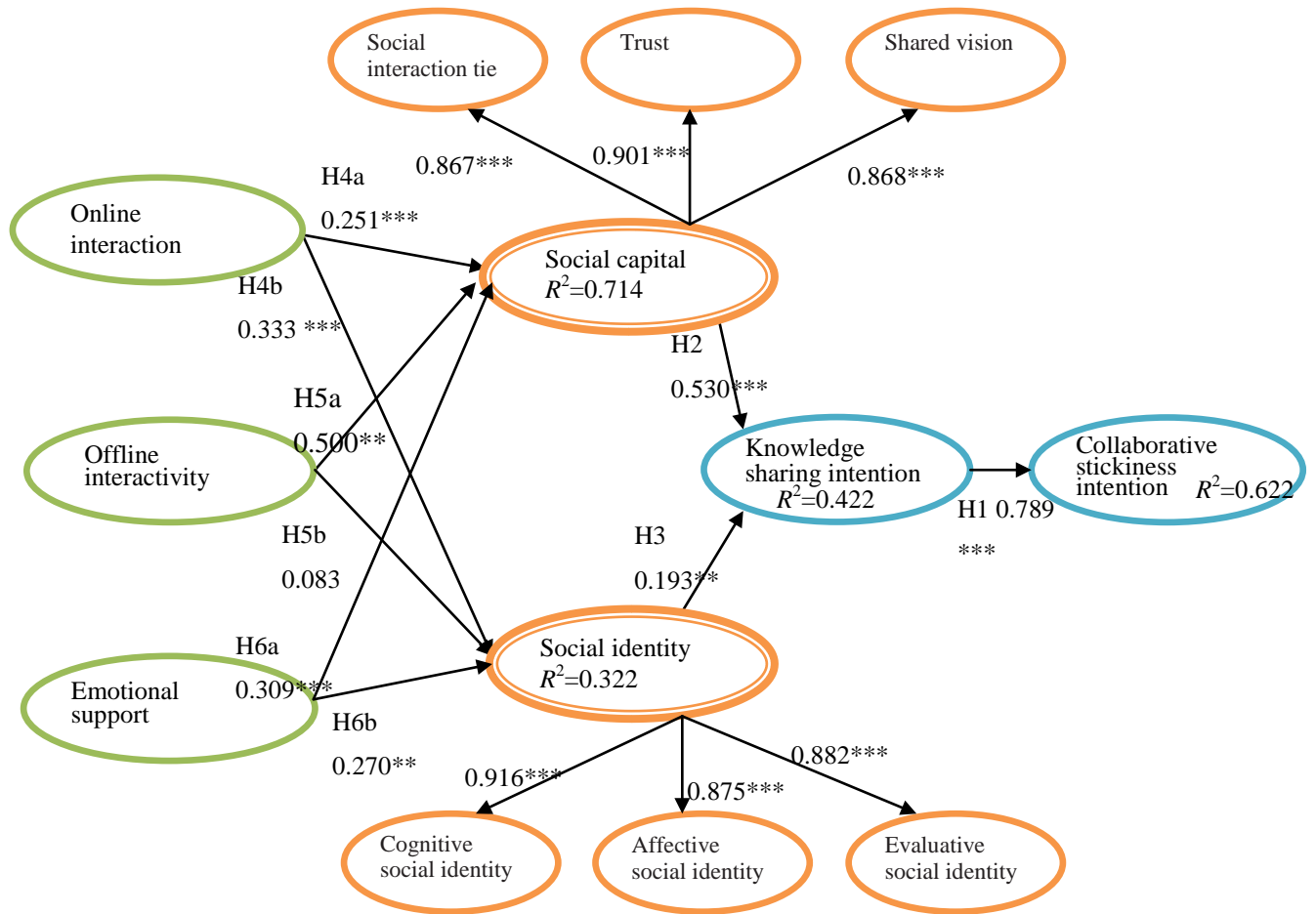


Figure 1. Research model and path analysis of this study

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